

CLAIM AMENDMENTS

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41. (Currently amended) A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein, variant, or fragment having telomerase catalytic activity when complexed with a telomerase RNA,

wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below  $T_m$  in aqueous solution at 1 M NaCl;

wherein  $T_m$  is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. (Previously added) The method of claim 41, wherein the cell is a human cell.

43. (Previously amended) The method of claim 41, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

44. (Previously added) The method of claim 43, wherein the cell is a human cell.

45. (Previously added) The method of claim 41, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

46. (Previously added) The method of claim 45, wherein the cell is a human cell.

47. (Previously amended) The method of claim 45, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

48. (Previously added) The method of claim 41, wherein the polynucleotide encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2.

49. (Previously added) The method of claim 48 wherein the cell is a human cell.

50. *(Previously amended)* The method of claim 48 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
51. *(Previously amended)* The method of claim 50 wherein the cell is a human cell.
52. *(Previously added)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.
53. *(Previously amended)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.
54. *(Previously added)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.
55. *(Previously added)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.
56. *(Previously amended)* The method of claim 52 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
57. *(Previously amended)* The method of claim 52 wherein the cell is a human cell.

58. (Re-presented — formerly claim 41)

A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein, variant, or fragment having telomerase catalytic activity when complexed with a telomerase RNA,

wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below  $T_m$  in aqueous solution at 1 M NaCl;

wherein  $T_m$  is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

59. (New) The method of claim 58, wherein the cell is a human cell.

60. (New) The method of claim 58, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

61. (New) The method of claim 58, wherein the polynucleotide encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ ID NO:2.

62. (New) The method of claim 58, wherein the recombinant polynucleotide is an expression vector.

63. (New) The method of claim 62, wherein the expression vector is a retrovirus expression vector.

64. (New) The method of claim 62, wherein the expression vector is an adenovirus expression vector.

65. (New) The method of claim 62, wherein the cell is an epithelial cell.

66. (New) The method of claim 62, wherein the cell is a keratinocyte or fibroblast of the skin.

67. (New) The method of claim 62, wherein the cell is a matrix, shaft, or stem cell of the hair.

68. (New) The method of claim 62, wherein the cell is a hepatocyte.

69. (New) The method of claim 62, wherein the cell is an endothelial cell.

70. (New) The method of claim 62, wherein the cell is a retinal pigmented epithelial cell of the eye.

71. (New) The method of claim 62, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
72. (New) The method of claim 62, wherein the cell is an immune cell or lymphocyte.
73. (New) The method of claim 63, wherein the cell is an epithelial cell.
74. (New) The method of claim 63, wherein the cell is a keratinocyte or fibroblast of the skin.
75. (New) The method of claim 63, wherein the cell is a matrix, shaft, or stem cell of the hair.
76. (New) The method of claim 63, wherein the cell is a hepatocyte.
77. (New) The method of claim 63, wherein the cell is an endothelial cell.
78. (New) The method of claim 63, wherein the cell is a retinal pigmented epithelial cell of the eye.
79. (New) The method of claim 63, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
80. (New) The method of claim 63, wherein the cell is an immune cell or lymphocyte.
81. (New) The method of claim 64, wherein the cell is an epithelial cell.
82. (New) The method of claim 64, wherein the cell is a keratinocyte or fibroblast of the skin.
83. (New) The method of claim 64, wherein the cell is a matrix, shaft, or stem cell of the hair.
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84. (New) The method of claim 64, wherein the cell is a hepatocyte.
85. (New) The method of claim 64, wherein the cell is an endothelial cell.
86. (New) The method of claim 64, wherein the cell is a retinal pigmented epithelial cell of the eye.
87. (New) The method of claim 64, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
88. (New) The method of claim 64, wherein the cell is an immune cell or lymphocyte.